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BUREAU OF MINES MINERALS YEARBOOK

# The Mineral Industry of Other Near East Countries

UNITED STATES DEPARTMENT OF THE INTERIOR

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# The Mineral Industry of Other Near East Countries

By Michael D. Fenton[1] and Charles L. Kimbell[2]

## CONTENTS


| | Page | | Page |
|---|---|---|---|
| Afghanistan | 1 | Syria | 10 |
| Bahrain | 5 | People's Democratic Republic of Yemen | 14 |
| Lebanon | 6 | Yemen Arab Republic | 15 |
| Oman | 7 | | |
| Qatar | 9 | | |


## AFGHANISTAN[3]

Detailed comprehensive assessment of the performance of Afghanistan's mineral industry during 1987 is virtually impossible, owing to the paucity of reliable published information. It was evident, however, that the level of civil disorder, now in its eighth year since the arrival of significant numbers of Soviet troops, was in actuality little removed from open civil war. Insurgents controlled substantial areas of the country and imperiled any industrial activity in many places. Assistance programs by the U.S.S.R. and other Eastern European nations were directed at developing the country's meager mineral industry, but the economy was generally viewed as chaotic.

The inflation rate was somewhere between 20% and 30%; major food shortages contributed to the discontent of the population, and numerous villages were devastated by Soviet and Afghan Government campaigns to destroy the insurgents and cut their supply routes. Moreover, proposals by the Soviets and the Kabul Government aimed at reducing tensions with the rebels and scaling down the warfare seemingly were taken by the opposition as signs of weakening by the Soviet-backed Government, and rather than reducing aggressions, seemed to heighten insurrectionist activities. Efforts to entice the substantial number of Afghans who have fled to nearby areas of Pakistan and Iran to return to their country seemingly were failures, and indications near yearend that the Soviet Union might soon begin withdrawal of its occupation force of nearly 120,000 did little if any to reduce disorder.

Evidence of mineral industry development during the year was sparse, in contrast to some prior years. It was reported that a contract was signed between the Afghan and Soviet Governments for the development of a new gasfield in northern Afghanistan. Technical details of the project were not reported; thus it was difficult to assess the significance of its reported cost of 21 million rubles in terms of U.S. currency. (Reportedly, it was suggested that this represented $33.7 million. This would indicate an exchange rate of 1 ruble equals $1.60—a figure clearly too high.) Of the

total project value, the Soviets were to provide 15 million rubles; the balance was to be provided by the Afghans. It further was not made clear if this project was intended to augment output from fields already established and in operation, or if it is intended to partly or totally replace these established operations. However, it may be significant to note that reported Soviet imports of natural gas from Afghanistan declined from 77,445 million cubic feet (MMcf) in 1986 to only 57,880 MMcf in 1987, a drop of slightly over one-fourth. This shortfall, of course, could be the result of either the depletion of some wells or an interrruption in pipeline flow (stemming from either insurgent activity or technical problems), or some combination of these.

There has been no clear evidence that the Ainak copper mine and beneficiation plant and the associated smelter at Kabul have yet come into commercial production, although they have been repeatedly described as being completed in late 1985. In fact, the meager information available suggests that smelting operations probably did not begin. The smelter product was to be delivered to the Soviet Union in repayment for the development and construction costs, but an examination of the official Soviet statistics on imports from Afghanistan shows no entry for copper imports in either 1986 or 1987, and, moreover, no significant unidentified value, at least in 1986, that could represent the value of copper shipped, even though not specifically identified. In 1987, there was a value of 18.5 million rubles of Soviet imports that were not specifically accounted for by commodity, and it is possible that some or all of this was for smelter copper.

If and when Ainak comes into production, an annual output ranging between 25,000 and 38,000 tons of smelter copper is expected from ore reserves of 360 million tons grading 0.7% copper to 1.5%. Because of the lack of evidence of commercial production, smelter output in the accompanying production table has been revised to zero, and mine output has been reduced to a minimal and nominal estimate, reflecting only a modest level of development work.

Of other projects, there were no reports, suggesting, at least, that there was little if any progress, probably owing largely to insurgent activities. The project to provide a rail link between the U.S.S.R. and Kabul, development work for the Hajigak iron ore deposits, and a myriad of programs for investigations of deposits of a variety of other minerals were conspicuously not mentioned.

Afghanistan's 1987 energy requirements presumably were not far from the 1986 level of about 1.67 million tons of standard coal equivalent (SCE). Of this consumption level, domestically produced natural gas provided almost precisely one-half, domestically mined coal about 10%, domestically generated hydropower about 5%, and the remaining 35% was met by liquid fuels, all imported except for a tiny domestic production of natural gas condensate and other natural gas plant liquids. In terms of SCE, Afghanistan's natural gas output, at 3.8 million tons in 1986, far exceeds total annual energy demand, but by far the largest share of the gas—nearly 80% in 1986—was exported to the Soviet Union. Thus, although energy production far exceeds demand in terms of total quantities, Afghanistan remains dependent upon liquid fuel imports to meet over one-third of its total energy requirement, this chiefly to meet the needs of transportation and small geographically isolated industrial establishments.

**Table 1.—Other countries of the Near East: Production of mineral commodities[1]**

(Metric tons unless otherwise specified)

| Country and commodity | 1983 | 1984 | 1985 | 1986[p] | 1987[e] |
|---|---|---|---|---|---|
| **AFGHANISTAN[2]** | | | | | |
| Barite[e] | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Cement, hydraulic[e] | 13,000 | 112,000 | 77,000 | r85,000 | 100,000 |
| Coal, bituminous | r145,000 | r148,000 | 151,000 | 160,000 | 150,000 |
| Copper:[e] | | | | | |
| Mine output, Cu content | -- | -- | r5,000 | r5,000 | 5,000 |
| Smelter | -- | -- | -- | (3) | -- |
| Gas, natural: | | | | | |
| Gross[e] million cubic feet | 100,000 | 106,000 | 111,000 | r111,000 | 112,000 |
| Marketed do. | 90,016 | r95,859 | 100,655 | 100,840 | 101,000 |
| Gypsum[e] | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Natural gas liquids[e] thousand 42-gallon barrels | r81 | r81 | 93 | 81 | 80 |
| Nitrogen: N content of ammonia | 8,000 | r41,000 | 45,000 | r40,000 | 40,000 |
| Salt, rock[e] | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |

See footnotes at end of table.

**Table 1.—Other countries of the Near East: Production of mineral commodities[1] —Continued**

(Metric tons unless otherwise specified)

| Country and commodity | 1983 | 1984 | 1985 | 1986[p] | 1987[e] |
|---|---|---|---|---|---|
| **BAHRAIN** | | | | | |
| Aluminum metal: Primary, smelter | 171,700 | 177,300 | 176,371 | 178,188 | [4]180,334 |
| Gas, natural: | | | | | |
| Gross million cubic feet | 139,325 | 145,152 | 224,475 | 256,230 | 257,000 |
| Marketed do. | 96,321 | 129,000 | 177,755 | 200,020 | 200,600 |
| Natural gas liquids: | | | | | |
| Butane thousand 42-gallon barrels | 914 | 864 | 772 | 894 | 900 |
| Propane do. | 996 | 1,010 | 976 | 889 | 900 |
| Naphtha do. | 1,209 | 1,251 | 1,206 | 1,169 | 1,200 |
| Petroleum: | | | | | |
| Crude do. | 15,164 | 15,289 | 15,301 | 15,484 | [4]15,300 |
| Refinery products: | | | | | |
| Gasoline do. | 4,993 | [e]6,100 | 6,892 | 7,520 | 7,500 |
| Jet fuel do. | 9,984 | [e]12,500 | 11,434 | 9,613 | 9,600 |
| Kerosene do. | 1,096 | [e]2,000 | 2,446 | 7,023 | 7,000 |
| Distillate fuel oil do. | 16,848 | [e]21,500 | 19,734 | 26,693 | 26,700 |
| Residual fuel oil do. | 16,344 | [e]17,000 | 15,378 | 22,611 | 22,600 |
| Other do. | 10,881 | [e]12,100 | 11,862 | 16,100 | 16,100 |
| Total do. | 60,146 | 71,200 | 67,746 | 89,560 | 89,500 |
| Sulfur, byproduct of petroleum do. | 49,275 | 47,300 | 42,300 | 50,070 | 50,000 |
| **LEBANON[3]** | | | | | |
| Cement, hydraulic thousand tons | 1,500 | 1,250 | 1,000 | NA | NA |
| Gypsum | [e]5,000 | 5,000 | 3,000 | NA | NA |
| Iron and steel: Metal, semimanufactures thousand tons | [e]100 | 100 | 90 | NA | NA |
| Lime[e] do. | 20 | 20 | 10 | NA | NA |
| Petroleum refinery products: | | | | | |
| Gasoline thousand 42-gallon barrels | [e]2,300 | 935 | 3,200 | 2,566 | [4]2,015 |
| Jet fuel do. | [e]300 | 107 | NA | 218 | [4]92 |
| Kerosene do. | [e]50 | 50 | 600 | 129 | [4]151 |
| Distillate fuel oil do. | [e]2,000 | 1,417 | 3,200 | 2,234 | [4]1,723 |
| Residual fuel oil do. | [e]3,500 | 2,664 | 5,800 | 4,549 | [4]3,388 |
| Liquefied petroleum gas do. | [e]175 | NA | 335 | 194 | [4]141 |
| Other do. | [e]125 | NA | NA | 153 | [4]35 |
| Refinery fuel and losses do. | [e]400 | NA | NA | 735 | [4]510 |
| Total do. | [e]8,850 | 5,173 | 13,135 | 10,778 | [4]8,055 |
| Salt[e] thousand tons | 5 | 5 | 5 | NA | NA |
| **OMAN** | | | | | |
| Cement, hydraulic | [e]2,200 | 477,000 | 648,501 | [r e]700,000 | [4]839,796 |
| Chromite, gross weight | [e]24,000 | 7,000 | -- | 4,820 | 6,000 |
| Copper: | | | | | |
| Mine output, Cu content | 11,300 | 16,200 | 17,700 | 18,200 | [4]18,121 |
| Smelter | 7,600 | 21,300 | 18,800 | 19,601 | 19,500 |
| Refinery | 3,800 | 15,100 | 14,300 | 14,561 | [4]15,490 |
| Gas, natural: | | | | | |
| Gross million cubic feet | 52,000 | [r]137,000 | 140,000 | 162,060 | 162,000 |
| Marketed do. | 23,500 | [r]66,300 | 78,000 | 76,000 | 76,000 |
| Natural gas liquids: Butane and propane thousand 42-gallon barrels | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |
| Petroleum: | | | | | |
| Crude do. | [r]141,900 | [r]152,400 | 181,800 | 204,100 | 188,000 |
| Refinery products: | | | | | |
| Gasoline do. | 2,550 | [r]2,996 | 3,243 | 3,585 | 3,500 |
| Jet fuel do. | 880 | [r]1,431 | 1,462 | 1,476 | 1,400 |
| Kerosene do. | 78 | 78 | [e]78 | [e]78 | 70 |
| Distillate fuel oil do. | 2,312 | [r]3,517 | 3,930 | 3,880 | 3,800 |
| Residual fuel oil do. | 1,199 | [r]7,605 | 8,570 | 9,363 | 9,300 |
| Other do. | 200 | [r]772 | 809 | 938 | 900 |
| Total do. | 7,219 | [r]16,399 | 18,092 | 19,320 | 18,970 |
| Sand and gravel thousand tons | 3,410 | 6,420 | [e]6,642 | 7,514 | [4]7,590 |
| Stone: | | | | | |
| Marble do. | 33 | 37 | [e]37 | 44 | [4]39 |
| Other do. | 4,572 | 4,224 | [e]4,000 | 2,875 | [4]247 |
| Sulfur, pyrites | [e]11,000 | 31,000 | 31,000 | 31,000 | 30,000 |

See footnotes at end of table.

**Table 1.—Other countries of the Near East: Production of mineral commodities[1] —Continued**

(Metric tons unless otherwise specified)

| Country and commodity | 1983 | 1984 | 1985 | 1986[p] | 1987[e] |
|---|---|---|---|---|---|
| **QATAR[2]** | | | | | |
| Cement, hydraulic thousand tons | 375 | 326 | 318 | 308 | 303 |
| Gas, natural: | | | | | |
| Gross million cubic feet | r202,136 | r215,905 | 214,480 | 229,100 | e227,395 |
| Marketed do. | r171,800 | r197,800 | 187,300 | r e199,300 | 198,000 |
| Iron and steel: Metal, semimanufactures thousand tons | 469 | 488 | 510 | 493 | e503 |
| Natural gas liquids thousand 42-gallon barrels | r13,038 | r16,594 | 12,789 | r e13,600 | 13,500 |
| Nitrogen: N content of ammonia | 480,800 | 518,000 | 524,800 | 544,100 | e560,800 |
| Petroleum: | | | | | |
| Crude thousand 42-gallon barrels | 107,675 | r147,100 | 111,800 | 102,000 | e106,945 |
| Refinery products: | | | | | |
| Gasoline do. | 1,097 | 1,700 | 2,169 | 2,130 | 2,200 |
| Jet fuel do. | e488 | e640 | 723 | 710 | 800 |
| Kerosene do. | e31 | e30 | 27 | e30 | 40 |
| Distillate fuel oil do. | 1,387 | 2,100 | 3,070 | 3,100 | 3,200 |
| Residual fuel oil do. | e1,465 | e1,500 | 4,071 | 4,200 | 4,300 |
| Other do. | 73 | 72 | 558 | 696 | 800 |
| Total do. | 4,541 | 6,042 | 10,618 | 10,866 | 11,340 |
| Stone: Limestone thousand tons | e1,600 | 1,500 | 1,100 | 900 | 900 |
| Sulfur | 19,000 | 33,264 | 36,500 | r e37,000 | e35,000 |
| **SYRIA** | | | | | |
| Cement, hydraulic do. | 3,626 | 4,279 | 4,296 | 4,200 | e2,870 |
| Gas, natural:[e] | | | | | |
| Gross million cubic feet | e16,729 | e17,922 | r18,000 | r18,000 | 18,000 |
| Marketed do. | 2,344 | 4,556 | r5,400 | r5,400 | 5,400 |
| Gypsum | r78,750 | r79,580 | 160,250 | 160,000 | e248,000 |
| Iron and steel: Steel, crude thousand tons | 80 | 69 | e69 | e69 | 69 |
| Nitrogen: N content of ammonia | 113,400 | r11,584 | 132,450 | 136,984 | e92,533 |
| Petroleum: | | | | | |
| Crude thousand 42-gallon barrels | 61,320 | 60,400 | 61,000 | 68,000 | e84,570 |
| Refinery products: | | | | | |
| Naphtha do. | 4,672 | 5,329 | NA | NA | NA |
| Gasoline do. | 6,242 | 7,190 | NA | NA | NA |
| Kerosene and jet fuel do. | 3,285 | 3,212 | NA | NA | NA |
| Distillate fuel oil do. | 46,757 | 52,889 | NA | NA | NA |
| Liquefied petroleum gas do. | 1,314 | 1,606 | NA | NA | NA |
| Asphalt do. | 2,336 | 2,409 | NA | NA | NA |
| Other do. | 1,533 | 1,716 | NA | NA | NA |
| Total do. | 66,139 | 74,351 | NA | 76,650 | NA |
| Phosphate rock thousand tons | 1,229 | 1,514 | 1,270 | 1,606 | e1,986 |
| Salt do. | 87 | 87 | e87 | e87 | e81 |
| Stone, sand and gravel: | | | | | |
| Stone: Dimension, marble cubic meters | 71,000 | 71,000 | e71,000 | e71,000 | e15,062 |
| Sand and gravel thousand tons | 5,780 | 5,829 | e6,000 | e6,000 | 6,000 |
| Sulfur, byproduct of petroleum and natural gas do. | 30 | r35 | r35 | e120 | 120 |
| **PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN** | | | | | |
| Petroleum refinery products: | | | | | |
| Gasoline thousand 42-gallon barrels | 2,000 | 2,000 | e2,000 | e2,000 | 2,000 |
| Jet fuel do. | 1,600 | 1,700 | e1,700 | e1,700 | NA |
| Kerosene do. | 1,100 | 1,200 | e1,200 | e1,200 | NA |
| Distillate fuel oil do. | 6,000 | 6,300 | e6,300 | e6,300 | NA |
| Residual fuel oil do. | 11,000 | 11,000 | e11,000 | e13,500 | NA |
| Other do. | 200 | 230 | e230 | e900 | NA |
| Total do. | 21,900 | 22,430 | e22,430 | e25,600 | 29,200 |
| Salt[e] thousand tons | 75 | 75 | 75 | 75 | 75 |
| **YEMEN ARAB REPUBLIC[3]** | | | | | |
| Cement do. | r850 | r1,390 | 1,400 | 1,160 | e760 |
| Gypsum | 23,138 | 24,295 | 25,000 | 53,000 | e150,000 |

See footnotes at end of table.

**Table 1.—Other countries of the Near East: Production of mineral commodities[1] —Continued**

(Metric tons unless otherwise specified)

| Country and commodity | 1983 | 1984 | 1985 | 1986[p] | 1987[e] |
|---|---|---|---|---|---|
| YEMEN ARAB REPUBLIC[2] —Continued | | | | | |
| Petroleum: | | | | | |
| Crude ——— thousand 42-gallon barrels | —— | —— | —— | 2,700 | 7,800 |
| Refinery products: | | | | | |
| Gasoline ——— do | —— | —— | —— | 811 | [4]1,103 |
| Diesel fuel ——— do | —— | —— | —— | 870 | [4]1,123 |
| Fuel oil ——— do | —— | —— | —— | 929 | [4]1,128 |
| Total ——— do | —— | —— | —— | 2,610 | [4]3,354 |
| Salt | [e]141,000 | [e]148,000 | 150,000 | 300,000 | [4]163,000 |

[e]Estimated. [p]Preliminary. [r]Revised. NA Not available.

[1]Table includes data available through Aug. 30, 1988.

[2]In addition to the commodities listed, asbestos, lapis lazuli, and uranium (in Afghanistan) and a variety of other crude construction materials (clays, sand and gravel, and stone) presumably are produced, but output is not reported quantitatively, and available information is inadequate to make reliable estimates of output levels.

[3]Revised to zero.

[4]Reported figure.

## BAHRAIN[4]

More than 75% of Bahrain's export earnings come from the sale of crude oil and refined products. The momentum generated during the successful first year of the 1986-91 5-year development plan for oil and gas declined slightly. Average crude oil production during the first 8 months was down slightly to 42,000 barrels per day (bbl/d) from 42,422 bbl/d over the same period in 1987. Only 13 wells were drilled during the first 8 months of 1987, compared with 20 wells drilled in 1986. Also, only 12 wells were overhauled, compared with 36 wells in 1986.

Associated gas production in 1986 was 51.3 billion cubic feet, down slightly from the previous year's 51.4 billion cubic feet. Bahrain National Gas Co. (Banagas) expected 1987 production to be higher as a result of an investment program to upgrade gas handling facilities. Nonassociated gas production from the Khuff Gasfield declined slightly to 691 million cubic feet per day (MMcfd) during January-August 1987, from the 1986 average of 702 MMcfd. Banagas sold gas to Gulf Petrochemical Industries, Aluminium Bahrain (Alba), and the Bahrain Petroleum Co. (Bapco) oil refinery, and the gas was used for liquefied petroleum gas (LPG) production, power generation, and reinjection for pressure maintenance.

Saudi Arabia announced in early 1987 that it would credit 75,000 bbl/d of oil to Bahrain as compensation for the shutdown of the offshore Abu Safah Field, in which both countries share 50-50 in production. Saudi Arabia's Arabian-American Oil Co. had marketed production from the field and split the proceeds with Bahrain.

Banagas appointed a consultant for a project to expand its LPG installation. Two compressor stations would be added to the present four, and a 110-MMcfd processing train would be installed in the central gas plant. Storage would be added at Sitra terminal to handle the additional butane and propane, while naphtha would continue to go to the Bapco refinery. Capacity at the Jebel Dukhan plant would be increased by up to 65%, to 280 MMcfd. The original capacity of 110 MMcfd was expanded to 170 MMcfd in 1986.

Banagas' 1986 revenue fell by 45% below that of 1985 to $31.6 million as a result of the 1986 slump in oil products prices, but rose again in 1987 by 19% to $37.6 million. In 1986, 1 MMcf of gas yielded 56 barrels of LPG, whereas in 1987, the yield was 60 barrels. Naphtha, propane, and butane production rose slightly from 2.9 million barrels in 1985, to 3.1 million barrels in 1986, and to 3.2 million barrels in 1987.

Bapco continued planning to modernize the Sitra Island refinery. Bapco's capital cost estimate to modernize the 50-year-old plant rose to $1.2 billion. The detailed feasibility study was expected to be completed within a year. There was also interest in improving wharves at Sitra to handle vessels larger than the current 100,000-

deadweight-ton capacity.

Alba produced more than 180,000 tons of primary aluminum metal in 1987, which was about 10,000 tons above rated capacity. Production of finished products for 1986 and 1985 was 178,194 tons and 174,825 tons, respectively. Total sales rose by 58% over that of 1986 to 228,310 tons. Net profit of the Bahrain Saudi Aluminium Marketing Co. (Balco), which markets the Bahraini and Saudi Arabian Governments' share of Alba production, was $60.3 million in 1987 on sales of 143,000 tons of aluminum products. Nearly 60% of production went to nearby gulf coast states, and 35% went to downstream fabricating plants in Bahrain. During 1986, Balco's profits were only $27.6 million, and 181,850 tons of metal was exported, an increase of 40% over 1985 exports. The profit increase was attributed by Balco partly to an increase in the price of aluminum from a low of $950 per ton in 1986 to $1,700 per ton by late 1987. Also, sales included a higher proportion of valued-added products, such as rolling ingot and extrusion billets, compared with earlier sales of commercial-grade metal and standard ingots.

In 1986, Balco had about 90 customers in 20 countries. Increased local sales in 1987 caused Balco to pull out of some world markets for lack of available metal.

The continuing expansion program at Alba, which would raise annual aluminum capacity from 170,000 tons to 225,000 tons, included the extension of potline 3 (potrooms 5 and 6) by 76 hooded, point-fed, and computer-controlled pots and the reequipping of potlines 1 and 2. Eight contractors bid for the $40 million job of supplying and installing five waste-heat boilers and a 60-megawatt steam turbine generator with air-cooled condenser. Bids were invited for an alumina handling contract to increase on-site alumina capacity to 55,000 tons from 30,000 tons and capacity at the Alba terminal to 60,000 tons from 35,000 tons. In anticipation of an increase in alumina requirements that would accompany the expansion, Alba made its first purchases from India's National Aluminium Co.

Although Gulf Aluminium Rolling Mill Co. (Garmco) reported a net loss of $12.7 million during 1986, the first full year of operation, it exceeded targeted output by 22%. Garmco expected to be making a profit by 1988. Plans for a 6,000-ton-per-year aluminum foil plant to be built next to Garmco's mill were behind schedule.

Shareholders of Arab Iron and Steel Co. (Aisco) voted to liquidate the company in anticipation of a takeover by Kuwait Petroleum Corp. Creditor banks accepted a proposal that the company would pay 48% of the $200 million in outstanding debts associated with the inoperative $160 million, 4-million-ton-per-year plant. Resolution of the debt problem may lead to the construction of a $260 million hot-briquet iron plant that would use Aisco's pellets to produce briquets of direct-reduction iron having a much higher value than pellets currently on the world market. Midrex of the United States was commissioned in mid-1986 to do a feasibility study, and a marketing study of the plant's proposed annual output of 1 million to 2 million tons was in progress by Kuwait-based Gulf Investment Corp. Aisco's failure was blamed on poor quality feedstock and the Iran-Iraq war that hurt sales.

## LEBANON[5]

Lebanon entered its 13th year of civil war in the spring, and the economic condition of the country reached a new low as inflation, unemployment, poverty, and hunger affected the population. The annual inflation rate exceeded 500%, and Lebanon's ratios of budget deficit and public debt to national income were among the highest in the world. Wage earners could barely support themselves; both the confederation of labor unions and the teachers union went on strike for salary increases and social benefits to compensate for the drop in real income. In addition, fuel shortages caused bread and electric power shortages, because most bakeries and powerplants were fueled by diesel oil.

The catastrophic collapse of the Lebanese pound brought the exchange rate down from 63 to the U.S. dollar at the beginning of the year to more than 500 by early November. Concurrently, Government revenues declined by yearend to less than $1 million while Government expenditures exceeded $500 million. Collected customs receipts were flowing into the coffers of the various militias controlling the ports. A plan to sell some of Lebanon's estimated $4

billion worth of gold reserves to raise income for credit and subsidies was deferred because of fear that this would erode remaining confidence in the Lebanese financial system.

The Ministry of Industry and Petroleum maintained complete control over the petroleum sector, including importing, refining, and setting retail prices. Much of the Government's spending went to subsidize fuel at artificially low prices, which resulted in the smuggling of inexpensive fuel to neighboring states. To alleviate this problem, the Government eased the gasoline subsidy for an annual savings to the Government of about $100 million.

The Government operated two oil refineries, Tripoli Oil Installations in north Lebanon and Zahrani Oil Installations in the south. It kept storage facilities in Dora, east Beirut, and Amcit, north Beirut. The refineries normally provide 40% to 45% of Lebanon's needs. Crude oil was imported from Iraq in tankers, and gasoline and gas oil were imported in tankers from Bulgaria. Jet fuel came from Greece, Italy, and Malta. Gasoline and gas oil were also imported illegally.[6] Jet fuel, lubricants, petrochemical feedstocks, and waxes were imported by private petroleum distribution companies or individuals. In Jiyeh, south Lebanon, entrepreneurs built seven reservoirs: three to store gasoline, two for gas oil, and two for asphalt.

Lebanon had two factories producing asphalt for local consumption: an old factory in Tripoli, and one established in September 1987 between Sidon and Tyre. Lebanon's major petrochemical industry was plastics processing, including plastic sheets, wrapping, containers, sanitary articles, and tiles.

## OMAN[7]

The petroleum industry dominated the economy of the Sultanate of Oman in 1987, providing 90% of export earnings (97% if reexports are not included) and more than 80% of Government revenues. For this reason the economy recovered significantly as oil prices rose from about $10 per barrel during mid-1986 to about $18 per barrel in 1987. Nevertheless, the third 5-year development plan (1986-90), which was based on oil prices of $22 to $23 per barrel, had to be revised, and a new plan was released in December 1987. The Government then reintroduced fixed-price contracts for oil, with the price set at $17.63 for the rest of 1987. Revenues increased to a projected $3.47 billion in 1987 compared with $3.17 billion in 1986. A budget deficit of $0.7 billion was forecast for 1987, significantly less than the $1.7 billion actual deficit of 1986. The 1988 budget indicated a deficit of nearly $0.7 billion and revenues of $3.5 billion including oil income of $2.8 billion and natural gas income of $112 million. The Government expected the gross domestic product (GDP) to increase by 2.5% per year for the rest of the decade.

At the beginning of 1987, Oman announced a cut in oil production and export in support of similar cuts by members of the Organization of Petroleum Exporting Countries (OPEC). Production would be reduced to about 520,000 bbl/d from 550,000 bbl/d. Only 468,000 bbl/d would be exported, rather than the previous average of 500,000 bbl/d. However, by mid-1987, output rose to 600,000 bbl/d, and by yearend, it was 565,000 bbl/d. The country's production capacity was 720,000 bbl/d. During 1986, Japan took 273,000 bbl/d, nearly 9% of its consumption requirements. A similar amount went to Japan in 1987. The Republic of Korea, Taiwan, Thailand, and Singapore also were buyers.

Omani crude oil reserves were about 4 billion barrels, more than one-half being in the northern oilfields of Fahud, Yibbal, Natih, al-Huwaisah, Lekhwair, and Shibkah. Oil deposits were relatively small, and widely scattered, unlike the huge reservoirs of easily extracted oil found elsewhere in the Arabian Peninsula. In 563 of the 736 wells producing during 1986, enhanced-recovery techniques of water, steam, and polymer injection were required to extract oil.

Petroleum Development Oman (PDO), which produced 98% of Oman's oil from 720 wells in 36 fields at the beginning of 1986, continued exploration and development at an active pace during 1987. PDO brought into production nine new fields, which could reach a total output of 69,000 bbl/d. Occidental Oil Co. of Oman drilled 22 wells, raising its production from 3,000 bbl/d to 9,000 bbl/d during the year. Elf Aquitaine of Oman drilled one new well at Sahmah and worked over old wells while producing about 6,500 bbl/d. Japex Oman Ltd. continued its appraisal of several wells drilled in

the Mazoon and Daleel structures, while Consolidated International Petroleum Corp. (CIPC) failed to confirm the high potential of an offshore structure with its West Bukha-1 wildcat well. The first developmental phase of Nimr Field was completed by PDO, which included the production centers Nimr A, B, and C, and Karim West, as well as the Amal gathering stations. The temporary facilities at the Zauliyah and Sukweihat Fields were replaced by permanent production installations. Development wells were drilled at the Fahud, Natih, and Yibal Fields in north Oman, and at Bahja, Nimr, and Thuleilat in the south. The experimental water injection system at Lakhwair was expanded.

PDO was testing a new discovery of 29° to 30° API light crude at Qarat al-Milh well, located about 15 kilometers north of North Ghaba in central Oman. The significant new discovery was in the deep Hausi formation, rather than the shallower Natih and Shuaiba Reservoirs that account for most of the hydrocarbon production in the area. Two of three oil-bearing zones in the formation tested 1,000 bbl/d. A small amount of light oil was also discovered in the Hausi formation at Alam, about 20 kilometers east of Qarn al-Alam.

PDO signed its first offshore concession agreement for 25,600 square kilometers in the Arabian Sea off southern Oman. A marine seismic survey was scheduled to begin in January 1988 in the area that was once held by Amoco Corp. of the United States. The three-block concession was split between an area off Salalah, near the Kuria Muria Islands, and an area south of Masirah Island. PDO also acquired a 48,600-square-kilometer onshore area in the southern Dhofar area.

PDO cut its capital expenditure budget to $1.1 billion, 26% below the level of actual spending in 1985. All new projects for installing enhanced recovery systems were deferred until the mid-1990's following a reassessment of the projected expenses. Projects in progress would be completed, however, at Marmul, Qarn Alam, Rahab, Amal, Mukhaizna, and Nimr Fields. Completions were expected by October 1988.

Oman had recoverable reserves of 2.5 trillion cubic feet (Tcf) of associated gas and 6.9 Tcf of nonassociated gas. In 1986, associated gas production averaged 261 MMcfd. Nonassociated gas production was 126 MMcfd. Flaring has been reduced over several years from 55% to 15%. During 1985, the Government Gas System, operated by PDO, sold 23.7 billion cubic feet to electric powerplants, 3.7 billion cubic feet to the Oman Mining Co., and 2.2 billion cubic feet to the Oman Cement Co.

The Government continued to make considerable progress in exploiting its natural gas resource. The Kuwaiti-based Arab Fund for Economic and Social Development agreed to provide a loan to partly finance phase 4 of the gas system expansion, which would increase availability of natural gas for electricity generation and water desalination, among other uses, at a cost of $105.2 million. Phase 4 involves the construction of a 180-kilometer, 36-inch gasline from the Yibal Field to Izki, the drilling in Yibal of four nonassociated gas wells, and the construction of gas-gathering and treatment plants and other facilities, including a terminal at Barka. Also, the Ministry of Petroleum and Minerals awarded a $715,000 contract for the study of gas demand, supply, and estimated production targets over the next 40 years.

CIPC awarded a contract to Brown & Root Inc. (United Kingdom) to do basic engineering studies on the Bukha Gasfield offshore from the Musandam Peninsula. The number of platforms needed and where the gas should be brought ashore would be determined by the study. Bukha could provide up to 60,000 bbl/d of natural gas liquids and at least 400 MMcf of dry gas per day. Possible consumers are the smelter planned by Umm al-Qaiwain Aluminium Co., and a fertilizer plant at Sohar. CIPC also acquired a 770-square-kilometer concession offsetting the Bukha Field concession.

The capacity of the main export pipeline from Fahud to the Mina al-Fahal terminal was increased to 725,000 bbl/d and was to be further increased to 915,000 bbl/d by the connection of additional spur lines. A major gas-gathering system was being developed for the associated gas in order to conserve nonassociated gas. The utilization rate of associated gas was 85% at yearend.

The capacity of Oman's single refinery, operated by Oman Refinery Co. (ORC) in Mina al-Fahal, was increased to 80,000 bbl/d by Mitsui Engineering and Shipbuilding Co. at a cost of $25 million. The reason was to meet rising domestic consumption that had been growing at about 14% annually. ORC was studying a proposal to use currently flared gas for power generation. Five gas turbines, each with a capacity of 2.5 megawatts, were proposed. ORC used 6

to 7 megawatts, and it could supply power to the Mina al-Fahal industrial and residential complex. All refined products were sold to BP Arabian Agencies Ltd. and Shell Markets (Middle East) Ltd., the sole distributors in Oman. The heavy residue was sold to Singapore refineries with cracking capabilities.

Oman's mining industry was based primarily on copper mining and refining facilities at Sohar, 250 kilometers north of Muscat. The Lasail and Bayda underground mines produced ore grading 1.7% copper at a rate of 14,000 to 15,000 tons of copper per year. Total reserves, including the Aarja deposit, were about 12 million tons averaging 2.1% copper, and the design capacity of the smelter and refinery was 20,000 tons per year. Amalgamated Metals Corp., United Kingdom, continued to take 12,000 tons, mainly for European customers.

Oman Mining Co. was reported to have been producing about 6,000 tons of chromite per year for export from a capacity of about 20,000 tons per year. The Government announced that French companies would soon be mining several other chromite deposits. However, conflicting reports indicate that a contract for geological studies and resource assessment of 10 known chromite deposits was postponed temporarily until revenues from oil exports improve.

## QATAR[1]

Qatar's oil reserve of about 3.3 million barrels was the smallest among member countries of OPEC, whereas its natural gas reserve of 157 Tcf represented about 4.5% of the world total and 12% of total OPEC gas reserves. This gas reserve was the fifth largest in the world, behind the reserves of the U.S.S.R., Iran, the United Arab Emirates, and the United States. Almost all of Qatar's gas reservoirs are in the North Field, 50 miles off Qatar's northeastern coast.

Despite efforts to increase the importance of Qatar's other producing sectors, petroleum still accounted for more than one-half of the GDP and 90% of revenue. The Qatari economy suffered in 1986 because of the steep decline in oil prices and weak demand for OPEC oil, but some real improvement in the economy occurred in 1987 as oil prices and demand rebounded. Oil revenues in 1987 reached an estimated $1.7 billion, compared to $1.6 billion in 1986, and $3.2 billion in 1985. The GDP improved from a 21% decline from 1985 to 1986 to a projected 5% increase from 1986 to 1987.

In May 1987, Qatar signed the long-awaited agreement with Bechtel Corp. of the United States and Technip of France to begin the first stage of the North Field gas project. All Qatari industries, and power and desalination plants, run on gas. The $950 million project would develop 800 MMcfd of natural gas that would be processed to about 730 MMcfd of dry gas for petrochemical, fertilizer, cement, and steel plants; power stations; the refinery; and seawater desalination plants. The liquids extracted from the North Field gas would be exported to earn about $160 million per year in 1987 dollars. The project would be financed 60% by international market funds, 20% by the Qatar Government, and 20% by oil payments to contractors. Financial adviser for the project was First Boston Corp. of the United States.

Although Qatar's OPEC production ceiling was 285,000 bbl/d during the first half of the year, production throughout the year was erratic. It was as low as 100,000 bbl/d in April, when the price of Qatari light crude was higher than spot market prices. In May, the Government yielded to market pressure and began discounting light crude prices. Production then rose beyond the 299,000-bbl/d OPEC quota set at the end of June. Production peaked at nearly 450,000 bbl/d in August but declined again to about 300,000 bbl/d in October. The Qatar General Petroleum Corp. (QGPC) reported that crude oil production averaged 293,000 bbl/d in 1987, of which 254,000 bbl/d was exported.

QGPC also reported that nonassociated gas production was 400 MMcfd, while associated gas production was 223 MMcfd; a combined 12% increase over 1986 production. Propane and butane production for the year was nearly 585,000 tons. Exports of LPG and natural gasoline were 634,000 tons and 204,000 tons, respectively; an increase of 20% over 1986 exports. Output of refined products increased by 14% to 1.6 million tons, while local consumption increased by 3%. Exports of diesel fuel and fuel oil reached 997,900 tons. Major buyers of petroleum were Japan, the United States, and Italy.

QGPC decided to increase the capacity of its Umm Said 50,000-bbl/d refinery by

12,000 bbl/d to meet growing demand. This refinery was connected to and operated as a single unit with a 12,000-bbl/d refinery to save on maintenance and production costs. Plans included renovating the distillation unit and upgrading the naphtha and kerosene hydrotreating plant, the platforming unit, and the oil and LPG plants. A new isomerization unit was to be installed to increase the octane level of gasoline.

Qatar Steel Co.'s (Qasco) production of direct-reduced iron (DRI) declined slightly to 470,000 tons, but exceeded the design capacity of 400,000 tons. DRI production was 490,000 tons during both 1985 and 1986. Steel bar semimanufactures were up 2% over that of 1986 to 503,000 tons. Fifteen percent of sales went to the domestic market, while the rest went to neighboring states, such as Saudi Arabia (more than 40%), Kuwait (20%), and the United Arab Emirates (20%). Qasco was still unable to report a profit for the year, but its financial performance was improved by administrative cost-cutting.

Qatar's industrial minerals industry included construction-based minerals such as clays, gypsum, and limestone for cement; recrystallized limestone for building aggregates; and silica sand. The Qatar National Cement Co.'s (QNCC) performance during 1987 was discouraging as a result of the availability of cheaper imports. QNCC produced 293,000 tons of clinker in 1987, 97.5% of its production goal, which was less than its 1986 production of 308,115 tons. Production of portland and sulfur-resistant cement was 126,521 tons. Unslaked lime output reached 14,652 tons and slaked lime production was 10,000 tons. Cement sales during the first half of the year were 63,378 tons, down 34% from sales in the same period in 1986. This decline followed a 31% drop from 1985 to 1986. Sales income was 20% below that of 1986, to $5.8 million. The company projected that profits for the year could decline to $2.7 million.

## SYRIA[9]

The economy of Syria was severely depressed by structural causes and problems related to the decline in oil prices during 1986. The Government was heavily invested in the public sector industries, and the military dominated the expenditure budget, while oil income and aid from other neighboring states declined. With foreign exchange limited even state-owned enterprises experienced difficulty obtaining required imported commodities and spare parts to keep factories in operation. Certain commodities, such as oil, were high-priority items that were allotted the hard currency necessary for importation. Stagnant agricultural production, high inflation, and depreciating currency were additional problems. The Government adopted tight fiscal policies to control the budget deficit, and concentrated on developing agriculture.

At the end of 1987, Syria's proven oil reserves were estimated at more than 1.5 billion barrels, and gas reserves were nearly 4.4 Tcf. Oil production averaged 231,700 bbl/d during the year. The major new field in the Deir-ez-Zor area may eventually transform Syria into a net oil exporter.

The 5-year agreement between Iran and Syria was renewed to May 1988. Iran would supply the Syrian military with 1 million tons (about 7.5 million barrels) of free oil and 2 million tons of oil at a cash price of $17.50 per barrel. The reduction in oil supplied by Iran was an indication of Syria's lessening reliance on Iranian light oil. The Banias and Homs refineries were being supplied to an increasing extent by local oil.

Brown & Root Engineering and Construction Co. of Dubai, an affiliate of Brown & Root of the United States, won a $70 million contract to assist Al-Furat Petroleum Co. increase oil production from its Deir-ez-Zor concession in northeastern Syria. The 60,000 bbl/d of oil from Thayyim Field was to be supplemented by 40,000 bbl/d to be produced from al-Ward and al-Asharah Fields. Gathering lines from al-Asharah would be laid and oil would be transported under the Euphrates River to al-Ward, where gathering lines and basic processing facilities would be established. These new fields would be joined by a 43-mile, 16-inch pipeline to the line from Iraq to Banias on the Syrian coast, which was carrying 35.5° API gravity, low-sulfur crude oil to the Homs refinery from a 57-mile spur line from Thayyim field. At yearend, Tanak 1 well struck oil near Thayyim Field and tested at 1,500 bbl/d. Another well, at Tayni in the Deir-ez-Zor concession, tested at 5,800 bbl/d.

A Syria-Soviet Union joint committee for economic, scientific, and technical cooperation held its ninth session in Damascus in June, and the Syrian Government announced that it was seeking new ways for cooperation. The U.S.S.R. agreed to assist in the expansion of the Syrian phosphate and

petroleum industries in return for payment in phosphate rock deliveries. In 1987, the Soviet Union took 89,000 tons of phosphate rock, and exports may reach 6 million tons by the year 2000. Meanwhile, two Soviet survey ships prospected for oil and minerals off Latakia.

Turkey proposed talks about possible joint exploitation of about 3 Tcf of gas discovered by Marathon Oil Co. of the United States in the Homs area in Syria, and the building of an export pipeline. The refinery at Homs invited bids for a turnkey contract to build a plant that would process spent oils and produce lubricants. This plant would have only about one-third of the 700,000-barrel-per-year capacity that had been proposed earlier.

The General Co. for Phosphates and Mines (Gecopham) succeeded in increasing its production and export of phosphate rock in 1987 as it had in 1986. Output increased by 24% over that of 1986 to nearly 2 million tons, whereas exports increased 23% over that of 1986 to 1.6 million tons. Unfortunately, price levels remained low during the year. Significant sales increases occurred in France, and new markets were opened in Austria, Denmark, Greece, Portugal, and Spain. With the expectation of additional increases in foreign sales, investment in mining machinery continued, and phosphate export facilities at Tartous were expanded from 1.3 million tons per year to 2.4 million tons.

Czechoslovakia's Strojexport was given two minerals exploration contracts worth $16.8 million to conduct geophysical and geochemical surveys throughout Syria during the next 3 years.

**Table 2.—Syria: Exports of mineral commodities[1]**

(Metric tons unless otherwise specified)

| Commodity | 1983 | 1984 | Destinations (principal), 1984 |
|---|---|---|---|
| METALS | | | |
| Aluminum: Metal including alloys, semimanufactures | 1 | -- | |
| Cobalt: Oxides and hydroxides | 13 | -- | |
| Copper: Metal including alloys: | | | |
| Unwrought | 581 | 934 | All to West Germany. |
| Semimanufactures | 2 | 29 | West Germany 27. |
| Iron and steel: Metal: | | | |
| Pig iron, cast iron, related materials | 33 | -- | |
| Semimanufactures: | | | |
| Bars, rods, angles, shapes, sections | -- | 2 | All to Saudi Arabia. |
| Universals, plates, sheets value, thousands | $1 | -- | |
| Rails and accessories | 2 | -- | |
| Wire | 14 | -- | |
| Tubes, pipes, fittings | 15 | 9 | Saudi Arabia 8. |
| Castings and forgings, rough | 148 | 86 | Saudi Arabia 68; Jordan 13. |
| Lead: Metal including alloys, semimanufactures | 2 | -- | |
| Magnesium: Metal including alloys, unwrought | 6 | 30 | All to Lebanon. |
| Other: Ashes and residues | 432 | 296 | All to Jordan. |
| INDUSTRIAL MINERALS | | | |
| Abrasives, n.e.s.: | | | |
| Natural: Corundum, emery, pumice, etc. | 2 | 40 | NA. |
| Grinding and polishing wheels and stones | 1 | -- | |
| Barite and witherite | 273 | -- | |
| Cement | -- | 1,220 | All to Jordan. |
| Chalk | -- | 18 | All to Saudi Arabia. |
| Clays, crude | 407 | 272 | Saudi Arabia 230; unspecified 42. |
| Fertilizer materials: Manufactured: | | | |
| Ammonia | 65 | 92 | Jordan 91. |
| Nitrogenous | 5,548 | 26,100 | Iran 20,000; Burma 6,000. |
| Phosphatic | 15,700 | 300 | All to Jordan. |
| Gypsum and plaster | 30,565 | 181 | Jordan 154; unspecified 27. |
| Magnesite, crude | -- | 30 | All to Saudi Arabia. |
| Phosphates, crude thousand tons | 1,002 | 951 | Romania 305; U.S.S.R. 208; Bulgaria 125. |
| Pyrite, unroasted | -- | 150 | All to Saudi Arabia. |
| Stone, sand and gravel: | | | |
| Dimension stone: | | | |
| Crude and partly worked | 143 | 2,054 | Lebanon 996; Saudi Arabia 850. |
| Worked | 49 | 21 | Saudi Arabia 12; Kuwait 4. |
| Dolomite, chiefly refractory-grade | -- | 1,428 | All to Jordan. |
| Gravel and crushed rock | 41,818 | 21,784 | Kuwait 12,345; Saudi Arabia 6,268. |
| Sand other than metal-bearing | 97 | -- | |
| Sulfur: Elemental: Colloidal, precipitated, sublimed | -- | 1 | NA. |
| Talc, steatite, soapstone, pyrophyllite, etc. | 2 | -- | |
| Other: Crude | 73 | 172 | Lebanon 97; unspecified 75. |

See footnotes at end of table.

**Table 2.—Syria: Exports of mineral commodities[1] —Continued**

(Metric tons unless otherwise specified)

| Commodity | 1983 | 1984 | Destinations (principal), 1984 |
|---|---|---|---|
| MINERAL FUELS AND RELATED MATERIALS | | | |
| Coke and semicoke | 5 | -- | |
| Petroleum: | | | |
| Crude thousand 42-gallon barrels | 42,226 | 36,913 | Romania 20,881; Italy 7,924. |
| Refinery products: | | | |
| Liquefied petroleum gas do | 16 | -- | |
| Gasoline, motor do | 715 | 119 | All to Lebanon. |
| Kerosene and jet fuel do | 116 | 271 | All to Norway. |
| Residual fuel oil do | 9,801 | 9,045 | Italy 4,118; France 2,811; Tunisia 468. |
| Bituminous mixtures do | 44 | 8 | All to Libya. |
| Petroleum coke do | 514 | 1,424 | Turkey 1,423. |

NA Not available.

[1]Table prepared by Virginia A. Woodson. Syria did not report exports of any mineral commodities to the United States during 1984.

**Table 3.—Syria: Imports of mineral commodities[1]**

(Metric tons unless otherwise specified)

| Commodity | 1983 | 1984 | Sources, 1984 | |
|---|---|---|---|---|
| | | | United States | Other (principal) |
| METALS | | | | |
| Alkali and alkaline-earth metals value, thousands | $18 | $32 | $28 | United Kingdom $4. |
| Aluminum: | | | | |
| Oxides and hydroxides | 3,196 | 236 | -- | West Germany 200; United Kingdom 36. |
| Metal including alloys: | | | | |
| Unwrought | 5,746 | 2,522 | -- | France 1,521; Belgium-Luxembourg 393; Bahrain 343. |
| Semimanufactures | 11,841 | 12,572 | 5 | West Germany 5,135; France 2,652; Turkey 1,162. |
| Chromium: Oxides and hydroxides | 21 | 4 | -- | All from West Germany. |
| Cobalt: Oxides and hydroxides | 1 | -- | | |
| Copper: Metal including alloys: | | | | |
| Unwrought | 57 | 43 | -- | Netherlands 30; Kuwait 7. |
| Semimanufactures | 9,391 | 6,960 | (2) | United Kingdom 1,856; Belgium-Luxembourg 1,317; France 1,106. |
| Iron and steel: Metal: | | | | |
| Scrap | 6,451 | 1,778 | 14 | Spain 1,704. |
| Pig iron, cast iron, related materials | 4,521 | 5,801 | (2) | Bulgaria 3,497; West Germany 2,300. |
| Ferroalloys: Ferromanganese | 776 | 332 | -- | U.S.S.R. 200; France 120. |
| Steel, primary forms | 54,097 | 126,620 | 1 | U.S.S.R. 26,123; Netherlands 19,055; Bulgaria 17,298. |
| Semimanufactures: | | | | |
| Bars, rods, angles, shapes, sections | 123,267 | 395,972 | 7,922 | Spain 98,222; U.S.S.R. 72,130; Romania 57,210. |
| Universals, plates, sheets | 74,525 | 91,786 | 21 | Hungary 25,259; West Germany 11,312; U.S.S.R. 10,083. |
| Hoop and strip | 28,639 | 22,285 | 212 | Greece 8,562; Austria 5,666; Italy 1,958. |
| Rails and accessories | 9,293 | 661 | -- | U.S.S.R. 413; Italy 126. |
| Wire | 19,594 | 9,533 | 131 | Romania 3,451; U.S.S.R. 2,296. |
| Tubes, pipes, fittings | (2) | 97,424 | 4,875 | West Germany 25,509; United Kingdom 15,132; Romania 10,084. |
| Castings and forgings, rough | 6,540 | 11,498 | 46 | Romania 5,004; Italy 1,397; Czechoslovakia 994. |
| Lead: | | | | |
| Oxides | 375 | -- | | |
| Metal including alloys: | | | | |
| Unwrought | 2,680 | 1,204 | -- | Italy 1,200. |
| Semimanufactures | 211 | 182 | -- | France 175. |
| Manganese: Oxides | -- | 10 | -- | All from Belgium-Luxembourg. |
| Nickel: Metal including alloys: | | | | |
| Unwrought | 15 | 38 | -- | Canada 20; West Germany 14. |
| Semimanufactures | 3 | 41 | -- | Hungary 40. |

See footnotes at end of table.

## Table 3.—Syria: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

| Commodity | 1983 | 1984 | Sources, 1984 | |
|---|---|---|---|---|
| | | | United States | Other (principal) |
| METALS —Continued | | | | |
| Platinum-group metals: Metals including alloys, unwrought and partly wrought value, thousands | $13 | $5 | -- | All from West Germany. |
| Tin: Metal including alloys: | | | | |
| Unwrought | 68 | 13 | -- | Belgium-Luxembourg 10; China 3. |
| Semimanufactures | 18 | 10 | -- | Denmark 9. |
| Titanium: Oxides | 336 | 378 | -- | Turkey 316; United Kingdom 34. |
| Tungsten: Metal including alloys, all forms | -- | 20 | -- | All from Hungary. |
| Zinc: | | | | |
| Oxides | 779 | 109 | 79 | Netherlands 16. |
| Metal including alloys: | | | | |
| Unwrought | 1,717 | 1,147 | -- | Bulgaria 976. |
| Semimanufactures | 46 | 809 | -- | Belgium-Luxembourg 500; Greece 263. |
| Other: | | | | |
| Oxides and hydroxides | 417 | 136 | 66 | Lebanon 40; France 22. |
| Base metals including alloys, all forms value, thousands | $8 | $2 | -- | All from West Germany. |
| INDUSTRIAL MINERALS | | | | |
| Abrasives, n.e.s.: | | | | |
| Natural: Corundum, emery, pumice, etc | 315 | 163 | -- | Lebanon 130; Italy 33. |
| Artificial: Corundum | 410 | -- | | |
| Grinding and polishing wheels and stones | 61 | 363 | -- | Italy 282; Czechoslovakia 30; Japan 16. |
| Asbestos, crude | 4,849 | 2,468 | -- | Poland 883; Sweden 390. |
| Barite and witherite | 3,918 | 3,087 | 120 | Kuwait 1,597; Turkey 1,337. |
| Boron materials: Oxides and acids | 31 | 5 | -- | France 2; West Germany 2. |
| Cement | 49,206 | 18,292 | -- | Lebanon 10,552; Turkey 3,514. |
| Chalk | 2,658 | 1,995 | -- | France 1,070; Belgium-Luxembourg 644. |
| Clays, crude | 7,571 | 14,195 | 55 | West Germany 8,011; Bulgaria 1,885; United Kingdom 1,611. |
| Diatomite and other infusorial earth | 1 | 48 | -- | United Kingdom 35; West Germany 10. |
| Feldspar, fluorspar, related materials | 1,027 | 4,006 | -- | Spain 2,092; West Germany 1,635. |
| Fertilizer materials: Manufactured: | | | | |
| Ammonia | 6 | 30 | -- | Netherlands 19; West Germany 11. |
| Nitrogenous | 145,516 | 2,257 | -- | Netherlands 1,567; Bulgaria 503. |
| Phosphatic | 13,271 | 531 | -- | Bulgaria 314; Belgium-Luxembourg 196. |
| Potassic | 11,673 | 19,765 | -- | West Germany 10,501; Italy 9,264. |
| Unspecified and mixed | 32 | 203 | 86 | West Germany 52; France 20. |
| Graphite, natural | 420 | 1,688 | -- | Republic of South Africa 1,453; Italy 235. |
| Gypsum and plaster | 12 | 3 | -- | Mainly from Italy. |
| Lime | 962 | 695 | -- | Turkey 400; Lebanon 139; Netherlands 116. |
| Magnesium compounds, unspecified | 10 | 15 | -- | All from Netherlands. |
| Mica: Worked including agglomerated splittings | 1 | 7 | -- | Mainly from France. |
| Pigments, mineral: Iron oxides and hydroxides, processed | 508 | 199 | -- | Spain 120; West Germany 54. |
| Precious and semiprecious stones other than diamond: Natural value, thousands | $20 | -- | | |
| Salt and brine | 11 | 201 | -- | Netherlands 115; Belgium-Luxembourg 60. |
| Sodium compounds, n.e.s.: | | | | |
| Carbonate, manufactured | 17,087 | 18,508 | 8 | Turkey 17,571; Bulgaria 820. |
| Sulfate, manufactured | 10,954 | 10,581 | 9 | West Germany 4,088; Italy 3,202; Netherlands 1,325. |
| Stone, sand and gravel: | | | | |
| Dimension stone: | | | | |
| Crude and partly worked | 112 | 4,530 | 15 | Turkey 3,028; Italy 784. |
| Worked | 691 | 2,414 | -- | Italy 2,114. |
| Dolomite, chiefly refractory-grade | -- | 150 | -- | All from U.S.S.R. |
| Gravel and crushed rock | 11,973 | 4,834 | 1 | Italy 3,494; Turkey 1,304. |
| Quartz and quartzite | 483 | 197 | -- | Turkey 76; Romania 72; Lebanon 32. |
| Sand other than metal-bearing | 100 | 90 | -- | Italy 70; Romania 14. |

See footnotes at end of table.

**Table 3.—Syria: Imports of mineral commodities[1] —Continued**

(Metric tons unless otherwise specified)

| Commodity | 1983 | 1984 | Sources, 1984 | |
|---|---|---|---|---|
| | | | United States | Other (principal) |
| INDUSTRIAL MINERALS —Continued | | | | |
| Sulfur: | | | | |
| Elemental: | | | | |
| Crude including native and by-product | 46,427 | 17,447 | -- | Saudi Arabia 16,497. |
| Colloidal, precipitated, sublimed | 220 | 1,357 | -- | Greece 1,254; France 78. |
| Sulfuric acid | 386 | 7 | -- | Mainly from France. |
| Talc, steatite, soapstone, pyrophyllite | 3,130 | 442 | -- | China 415. |
| Other: Crude | 829 | 521 | -- | West Germany 237; Spain 146. |
| MINERAL FUELS AND RELATED MATERIALS | | | | |
| Asphalt and bitumen, natural | 30 | -- | | |
| Carbon black | 3,605 | 1,212 | -- | West Germany 969; Netherlands 193. |
| Coal: | | | | |
| Briquets of anthracite and bituminous coal | 522 | 250 | -- | All from Belgium-Luxembourg. |
| Lignite including briquets | -- | 50 | -- | All from United Kingdom. |
| Coke and semicoke | 4,929 | 3,683 | -- | Italy 3,474. |
| Peat including briquets and litter | -- | 34 | -- | All from United Kingdom. |
| Petroleum: | | | | |
| Crude thousand 42-gallon barrels | 43,750 | 44,807 | -- | Iran 34,136; Libya 9,583. |
| Refinery products: | | | | |
| Liquefied petroleum gas do. | 345 | 1,310 | -- | Greece 527; Italy 435; Libya 134. |
| Gasoline, motor do. | 213 | 35 | -- | Italy 34. |
| Mineral jelly and wax do. | 4 | 4 | -- | West Germany 2; Japan 1. |
| Kerosene and jet fuel do. | 994 | 657 | -- | Italy 244; Czechoslovakia 162. |
| Distillate fuel oil do. | 376 | -- | | |
| Lubricants do. | 823 | 260 | 21 | Italy 190; United Kingdom 30. |
| Residual fuel oil do. | 1,324 | 1,107 | -- | Romania 893; U.S.S.R. 147. |
| Bituminous mixtures do. | 14 | 2 | (3) | Mainly from Romania. |

[1]Table prepared by Virginia A. Woodson.
[2]Less than 1/2 unit.
[3]Unreported quantity valued at $84,611,000.

## PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN[10]

The Government in Aden continued its efforts at post-Civil War reconstruction by revising its 1986-90 development plan to include a capital spending budget of $1.7 billion, mostly for repairs to factories and infrastructure. The beginning of an indigenous oil industry brought the promise of increased prosperity. The Government's association with the Soviet Union remained strong, and the Soviets were deeply involved in the development of the oil industry.

The Soviet Union agreed in late 1986 to finance oil exploration until 1990 with a $190 million loan, and to conduct geological and geophysical exploration at Shabwa, 300 kilometers northeast of Aden, which included 164,000 feet of hole by 1989. By the beginning of 1987, eight rigs were operating on the 13,500-square-mile Shabwa block adjoining Yemen Hunt Oil Co.'s Marib-Jawf exploration permit in north Yemen. In early 1987, the Government announced that three wells struck oil. By yearend, a reserve was established of about 3.8 billion barrels of low-sulfur oil rated at 36° to 41° API. The estimated recoverable proportion was not revealed. Production capacity was estimated at about 25,000 bbl/d, which was sufficient for local needs, but actual output was lower, with 5,000 to 10,000 bbl/d being trucked to the Aden refinery. Oil for export would eventually be transported to Bir Ali on the Arabian Sea through a pipeline to be built by the Soviet Union for about $473 million. A gas separation and desulfuring units at Shabwa were also envisaged.

Elf Aquitaine Petroleum was awarded a 6-year production sharing concession covering a 19,374-square-kilometer onshore-offshore tract in the Aden-Abayan area in the southwestern region of south Yemen. Exploration would include geological studies, aerial magnetic and seismic surveys, and drilling.

The Braspetro Group, consisting of Petrobras International S.A., Hispánica de

Petróleos S.A., and British Petroleum Corp., drilled four dry holes and intended to relinquish its 33,600-square-kilometer concession in the Hurrin-Ghayda block in the eastern part of the country. The Independent Petroleum Group, a privately owned Kuwaiti organization, was looking for partners to continue seismic surveys and drilling in its concession at Balhaf, east of Aden.

In January 1987, the Government signed a 1-year, renewable agreement to process 20,000 bbl/d of oil for the Kuwait Petroleum Corp. in the Aden refinery. Previously, the volume of Kuwaiti oil processed was 10,000 bbl/d. The Government also discussed with Qatar the possibility of processing 10,000 to 20,000 bbl/d of Qatari oil. The 170,000-bbl/d Aden refinery also processes 12,000 bbl/d of Soviet Union oil.

## YEMEN ARAB REPUBLIC[11]

The Yemen Arab Republic (YAR) joined the ranks of oil exporters when its 225,000-bbl/d export pipeline from Alif Oilfield to the Red Sea was inaugurated in December 1987. This meant increased economic independence for the YAR, which had been depending on aid from oil-producing neighbors and remittances from Yemenis working in those countries, both of which amounted to about 40% of the GDP. However, the prospect of becoming an oil exporter increased popular expectations of prosperity and, therefore, adversely affected economic policy. Tight fiscal strategies of 1986 were abandoned, import controls were relaxed (resulting in a larger than expected current account deficit), and foreign borrowing and spending rose substantially. The overall fiscal deficit was estimated at 22% of the GDP. Although the Government's new draft budget forecast oil revenues of $600 to $700 million on the basis of an output of 200,000 bbl/d and a price of $15 per barrel, the Government anticipated that this new income would merely offset the recent decline in remittances and foreign aid.

Oil production at yearend was 150,000 bbl/d and was scheduled to rise to 175,000 bbl/d when the Azal Oilfield was brought on-stream in early 1988. Production was expected to rise to 200,000 bbl/d when the recently damaged offshore tanker storage facility, having a capacity of 3 million barrels, was operational. Several additional small fields were discovered, including Lam, Meem, and Noon. A national marketing agency was formed, but initial sales were to be handled by Exxon Corp. The Government was to market 70,000 bbl/d of the initial export volume, with the remainder going to Hunt Oil Co., Exxon Corp., and Yukong Ltd. of the Republic of Korea. Mobil Oil Corp., Azienda Generali Italiana Petroli S.p.A. (AGIP) of Italy, and Yukong agreed to take 1.3 million barrels each during 3-month periods for the Government's share. Other sales contracts were signed with Texaco Inc., Mitsui Oil Co., and Nippon Oil Co.

Yemen Hunt Oil drilled 131 wells, of which all but 20 showed hydrocarbons. The country's oil reserves were officially put at 500 million barrels, but they may be as much as 1 billion barrels with newer discoveries. Gas reserves discovered in the Alif Field totaled more than 4 Tcf. The pipeline can be expanded to handle 400,000 bbl/d, and the Government commissioned studies to determine the feasibility of an oil refinery with a capacity of 50,000 bbl/d and the feasibility of using the gas for factories and power generating stations. An LPG bottling plant was also being considered for construction.

The YAR's Ministry of Oil and Mineral Resources announced that it required a review of existing mineral survey work, a new detailed general survey of mineral resources, and a minerals development plan. Commodities that may be available in commercial quantities were copper, gold, gypsum, lead, marble, silver, uranium, and zinc. In addition, U.S. companies would be allowed exclusive rights to develop mineral resources. The U.S.S.R. agreed to assist in producing a geological map of the YAR. The Government also contacted several U.S. mineral and mining companies in connection with this announced plan.

A contract was to be awarded to one of three Japanese-led consortia for a feasibility study for the Yemen Fertilizer Co. The proposed new plant would be based on local natural gas from the Marib basin. The product, probably urea, would be used locally and possibly exported.

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[1]Physical scientist, Division of International Minerals.
[2]Senior foreign minerals specialist, Division of International Minerals.
[3]Prepared by Charles L. Kimbell.
[4]Prepared by Michael D. Fenton.
[5]Prepared by Michael D. Fenton.
[6]U.S. Embassy (Lebanon). State Dep. Airgram, 86 State A-417, June 2, 1988.
[7]Prepared by Michael D. Fenton.
[8]Prepared by Michael D. Fenton.
[9]Prepared by Michael D. Fenton.
[10]Prepared by Michael D. Fenton.
[11]Prepared by Michael D. Fenton.

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